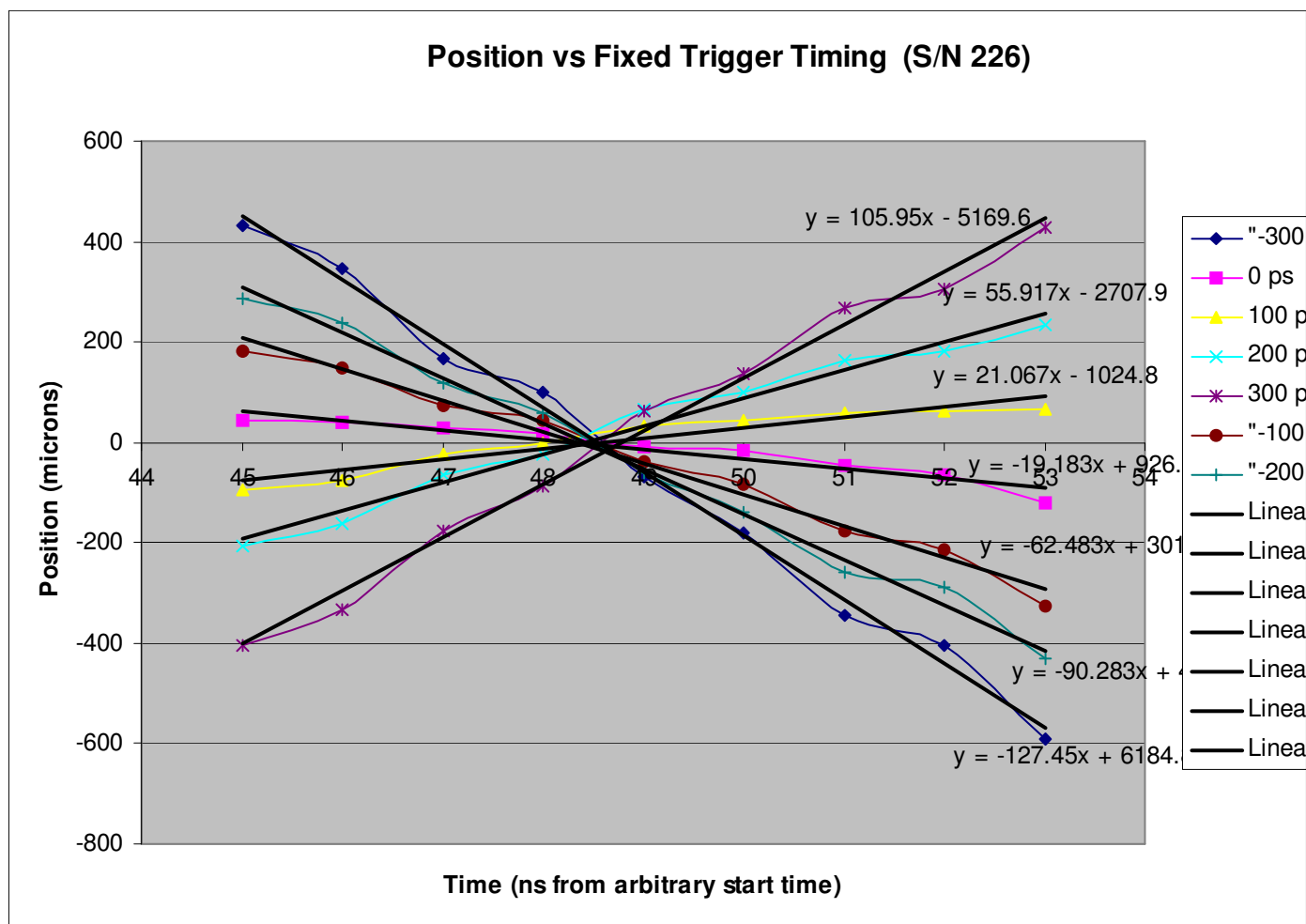


**Objective:** To investigate the variation of the position measurement as a function of fixed trigger timing for various phase mismatches. The experiment will be done for 3 different IFEs on the bench.

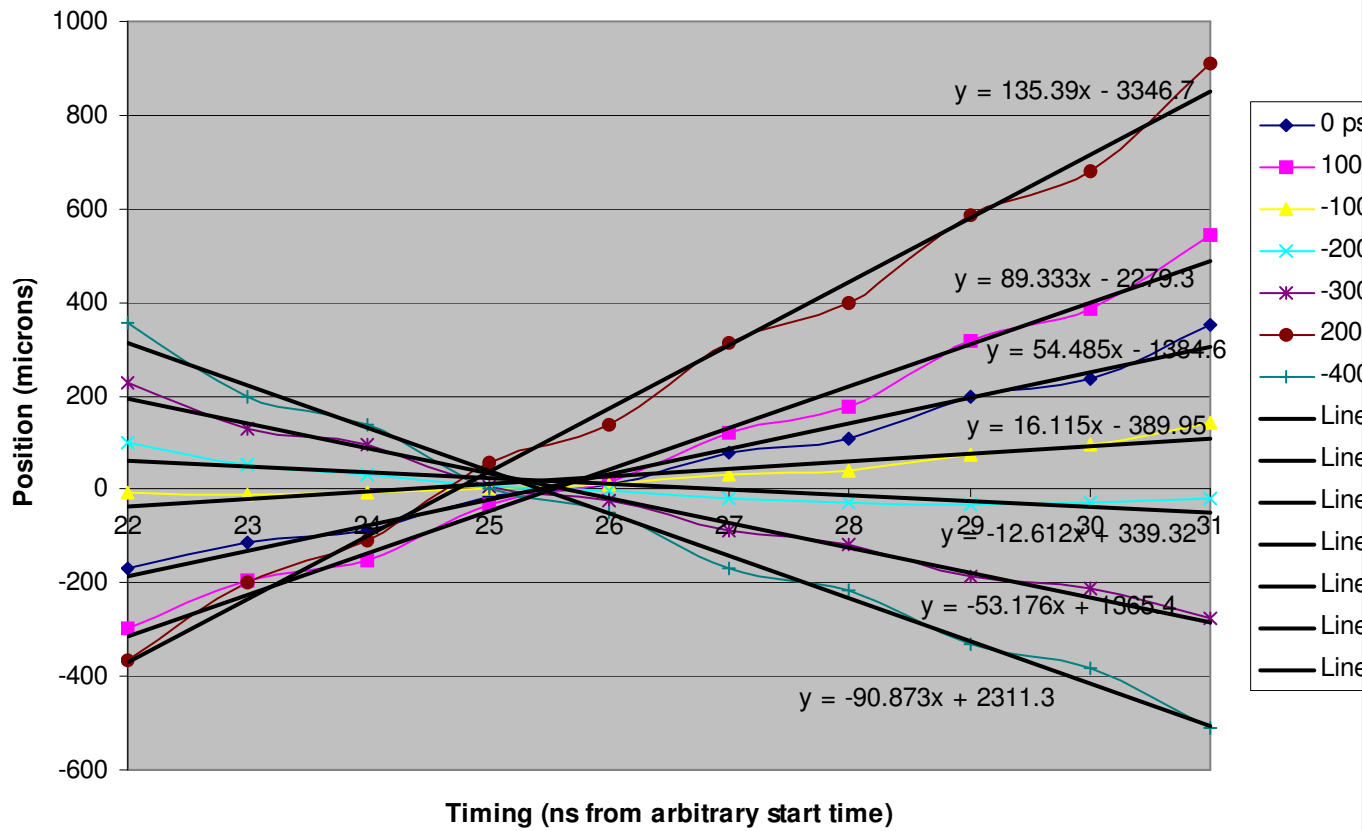
**Hypothesis:** The position measurement varies linearly with fixed trigger timing, and the slope of the position vs fixed-trigger-timing function varies linearly with phase mismatch.

**Method:** Starting with a calibrated board, manually sweep fixed trigger timing across the signal peak for different values of phase mismatch.

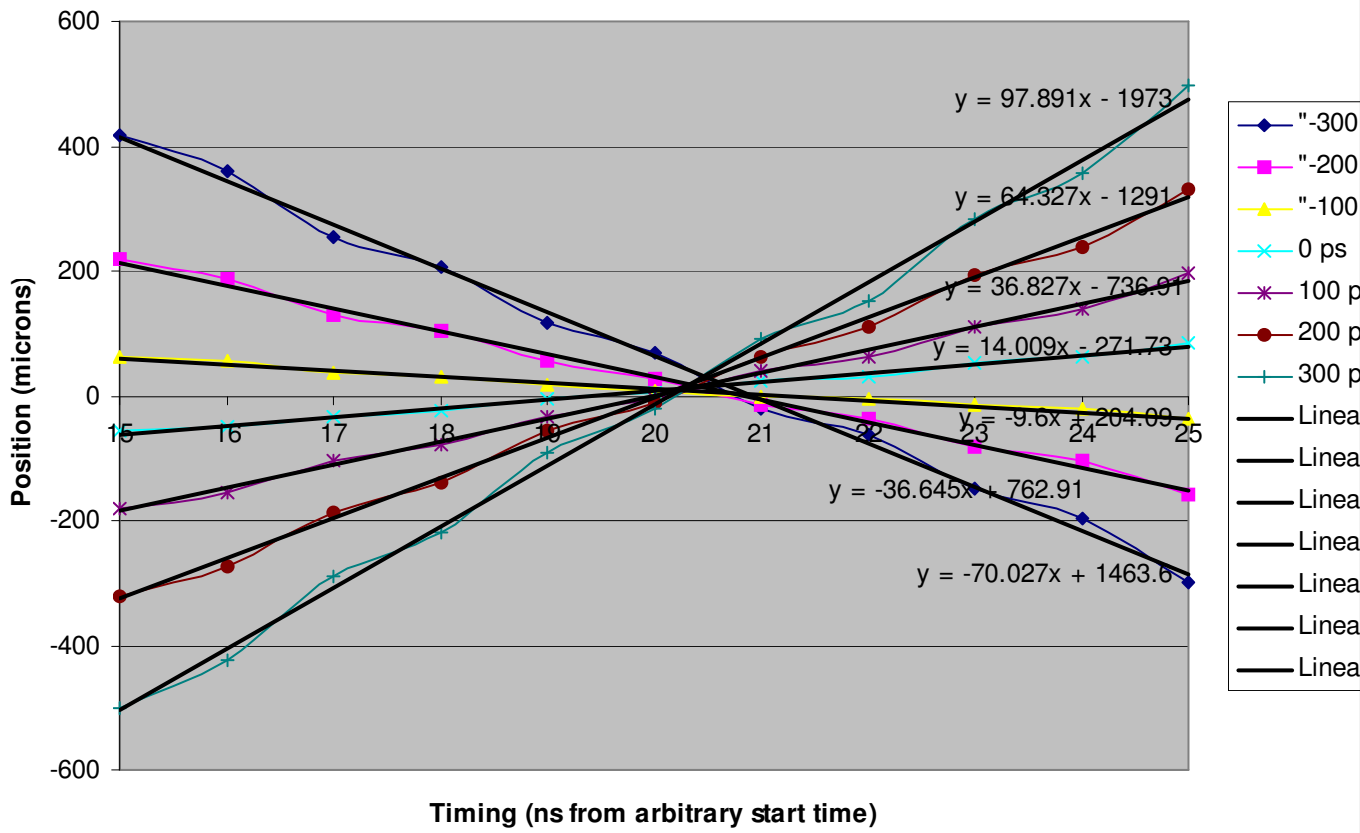
**Experimental Results:**



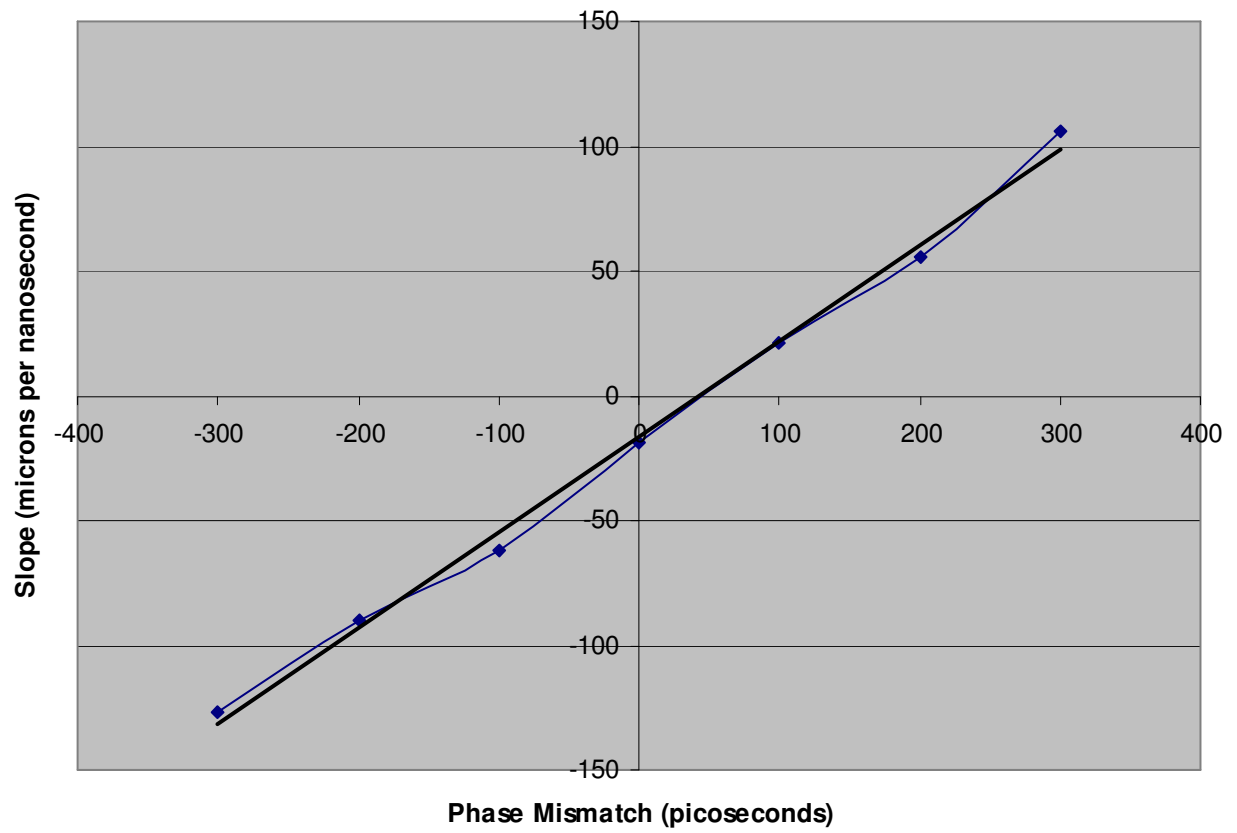
Position vs Fixed Trigger Timing (S/N 2016)



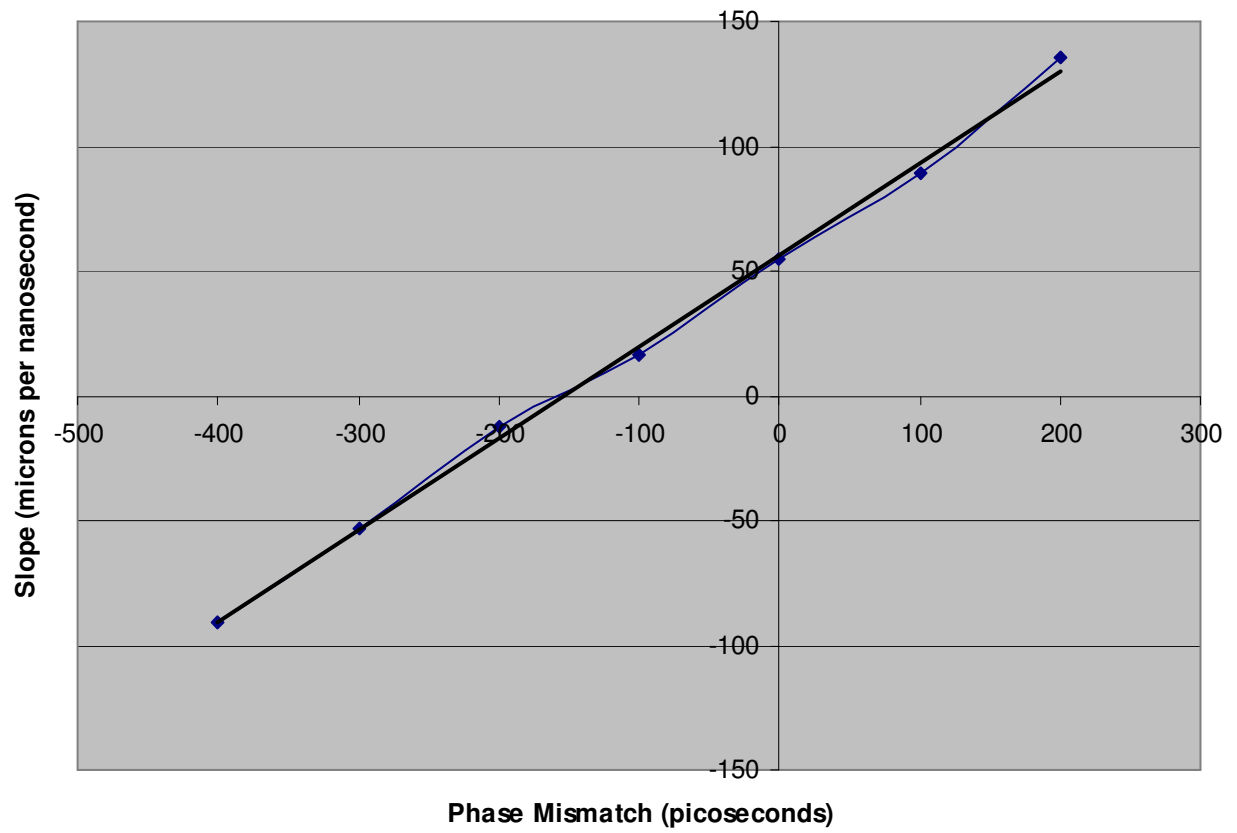
Position vs Fixed Trigger Timing (S/N 136)

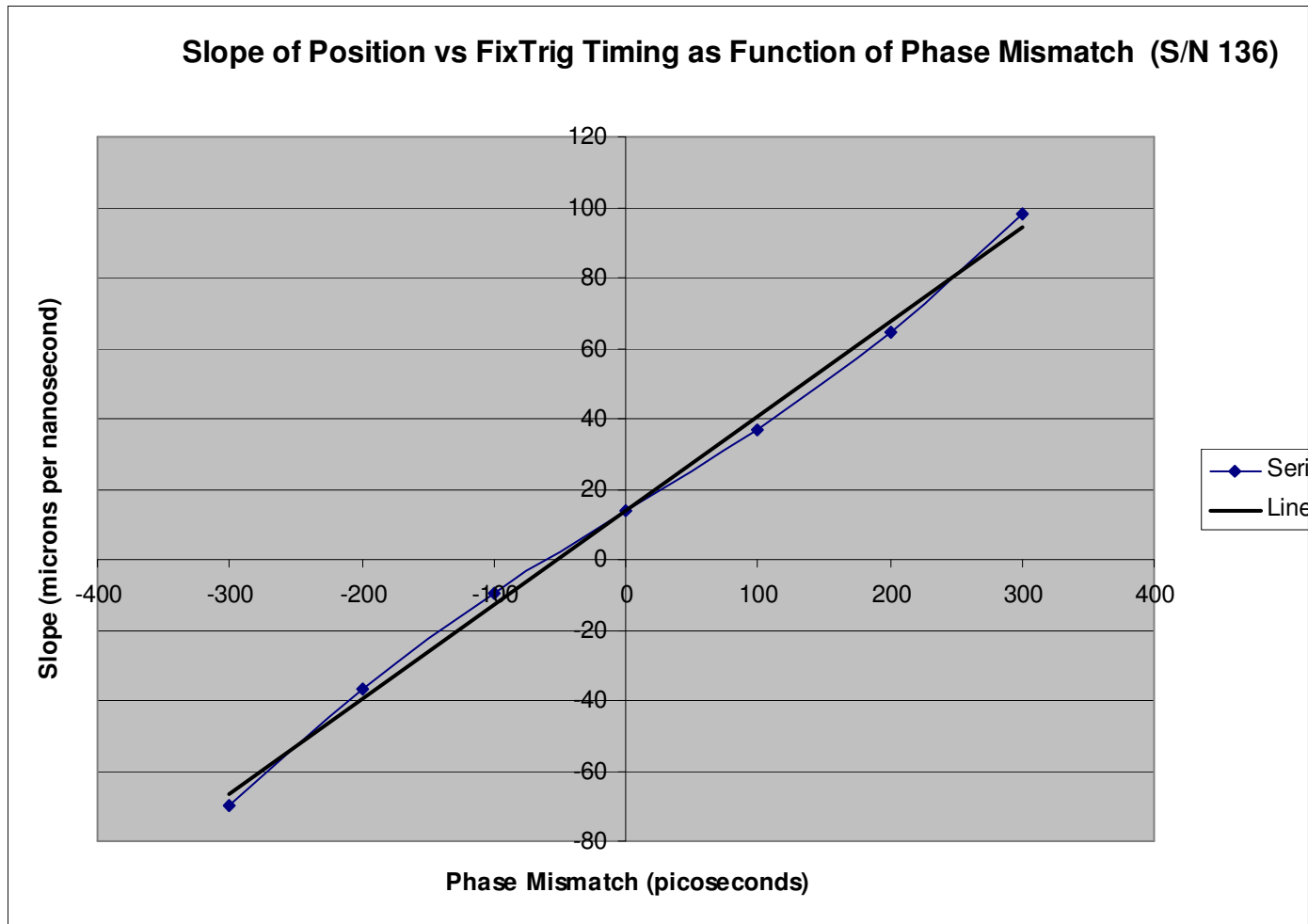


**Slope of Position vs FixTrig Timing as Function of Phase Mismatch (S/N 226)**



**Slope of Position vs FixTrig Timing as Function of Phase Mismatch (S/N 2016)**





Discussion of Data:

The position measurements vary linearly with respect to fixed trigger timing over the 10 nanosecond range tested.

The slope of the linear plots in the first three figures are plotted with respect to the phase mismatch. These last three plots show that this relationship is also linear over the tested range of 600 picoseconds of mismatch ( $\pm 300$ ps).

Conclusion: The position will vary linearly with fixed trigger timing in the presence of input signal phase mismatch. This dependence on phase mismatch is also linear.